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EPA

Selecting and Specifying Energy-Efficient EXIT signs

EPA DOE
SAVING THE EARTH. SAVING YOUR MONEY.

Why Choose Energy-Efficient Exit Signs?

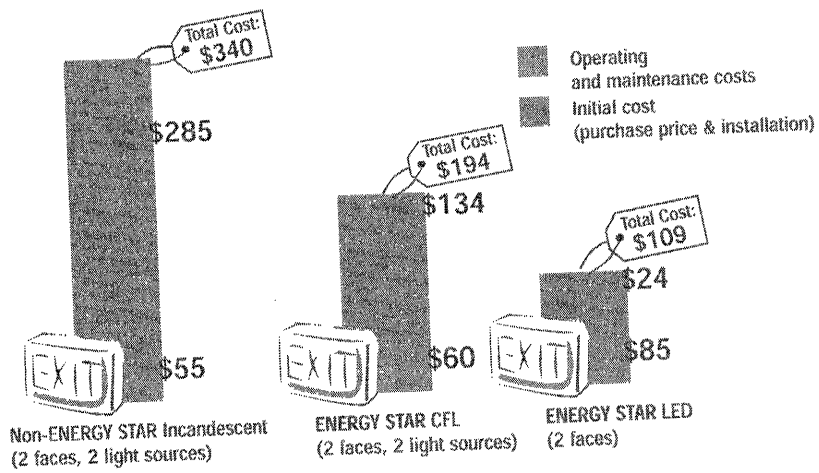
Exit signs cost more to operate than you may think. Traditional incandescent exit signs use significant amounts of energy and require frequent lamp replacement. To help companies save energy and money, EPA has partnered with exit sign manufacturers to produce and promote exit signs that meet energy-efficiency guidelines and qualify for the ENERGY STAR® label. By using exit signs with the ENERGY STAR label, you'll receive significant financial and environmental benefits:

- save money through lower energy bills
- reduce maintenance needs and costs
- protect the environment, since fewer harmful pollutants are released into the air through the burning of fossil fuels

ENERGY STAR® is a registered mark

Life-Cycle Costs

The value of ENERGY STAR labeled exit signs is clear when you consider the total cost associated with operating an exit sign. Over a ten year period, look at the savings you can get from ENERGY STAR labeled exit signs:



If you would like a diskette in Excel or Lotus format to help you calculate savings and life-cycle costs in your area, call the ENERGY STAR hotline toll-free at 1-888-STAR-YES (1-888-782-7937).

Beware of Hidden Costs in Your Current Exit Signs

Don't be fooled by lower first-cost price tags for incandescent exit signs. Traditional exit signs have hidden costs that add up over time, so remember to consider the *total costs* required to operate an exit sign for an extended period. For example, a two-face, double-lamp incandescent exit sign can cost $260 more to operate over ten years than a comparable ENERGY STAR labeled exit sign. So, purchasing 100 ENERGY STAR labeled exit signs could save you $23,000 over ten years, despite their higher price tag.

How to Specify an ENERGY STAR Labeled Exit Sign

In writing specifications for the purchase of exit signs, consider characteristics that are important to your facility. Important considerations include:

- color of sign (green or red?)
- is battery backup required?
- location and placement
- applicable state and local building codes
- light source (CFL, LED or other?)
- appropriate casing materials for application
- number of faces (single or double?)
- power factor
- life-cycle costs

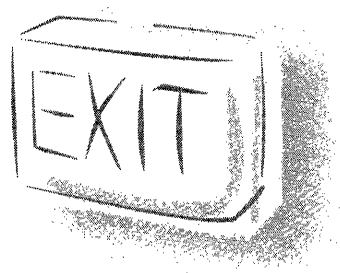
To ensure that you save energy and reduce air pollution, specify that the signs be ENERGY STAR compliant. In your request for proposals, include the following specifications:

Performance Measures:		ENERGY STAR Performance Specification:
Input power demand	-	Less than 5 watts per face
Letter size and spacing	-	Adheres to NFPA's Life Safety Code 101*
Luminance contrast	-	Greater than 0.8
Average luminance	-	Greater than 15 candelas/meter^2 (cd/m^2) measured at normal (0°) and 45° viewing angles
Minimum luminance	-	Greater than 8.6 cd/m^2 measured at normal (0°) and 45° viewing angles
Maximum to minimum luminance	-	Less than 20:1 measured at normal (0°) and 45° viewing angles
Manufacturer warranty for defective parts	-	5 years

*The sign shall have the word "EXIT" or other appropriate wording in legible letters not less than 6 in. (15.2 cm) high with the principal strokes of letters not less than 3/4 in. (1.9 cm) wide. The word "EXIT" shall have letters of a width not less than 2 in. (5 cm.) except the letter "I," and the minimum spacing between letters shall be not less than 3/8 in. (1 cm.). Signs larger than the minimum established in this paragraph shall have letter widths, strokes, and spacing in proportion to their height.

Replacement vs. Retrofit

When deciding whether to replace an old exit sign or upgrade it with a retrofit kit, remember to compare costs beyond the initial purchase price. Installation costs, age of existing sign, energy use, and maintenance costs are important factors to consider. For safety, quality assurance, and lower energy costs, consider purchasing a new exit sign that has earned the ENERGY STAR label. Purchasing an ENERGY STAR compliant exit sign guarantees that your sign:



- operates on less than five watts per face
- exceeds the NFPA Life Safety Code 101 guidelines
- has a minimum five-year manufacturer warranty for defective parts.

For more information, a list of ENERGY STAR Exit Sign Manufacturing Partners, or a list of compliant exit signs, please call the ENERGY STAR hotline toll-free at 1-888-STAR-YES (1-888-782-7937) or visit our website at www.epa.gov/exitsigns.html.

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Exit Signs

Looking for a quick way to reduce energy and maintenance bills? Exit signs that must b hours a day, 7 days a week can take a bite out of commercial and industrial budgets, bu today's more efficient exit signs can offer lifetime savings of up to $300 per sign in reduc energy, materials, and labor costs as compared to standard incandescent models.

What Are the Options?

Incandescent lamps. In traditional exit signs, two incandescent lamps typically light the sign. They draw 24 to 40 watts of power (Table 1), so depending on local prices, a single exit sign can run up electricity bills of more than $30 per year. More important, exit signs are required to be on all the time, and therefore the lamps burn out in a matter of months. The cost of replacement lamps and the labor to install them can add $24 per sign, not to mention increasing the risk of having a sign out of order at the wrong time.

Table 1: Comparison of exit sign alternatives

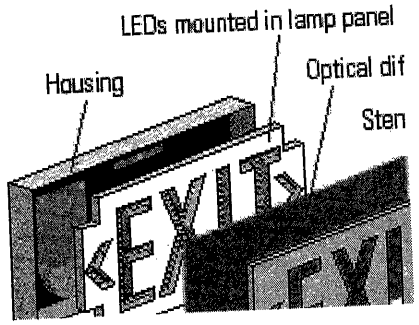
Light source	Wattage	Life
Incandescent lamp	24 to 40	2 to mon
LEDs	1 to 5	10+
CFLs	10 to 24	1 to
Electroluminescent panels	1	8 ye
Photoluminescent materials	0	Very lume depr

Source: E S

Today, the most cost-effective alternatives are the newest **light-emitting diode (LED)** exit signs (Figure 1). They use only 1 to 5 watts of power per surface and cost less than $5 per year to operate, depending on the model and local utility costs. Because LEDs also last considerably longer than incandescent lamps, lifecycle savings are dram Over a 10-year period, first costs, energy expenditures, and maintenance requirements incandescent sign will run around $380, while a comparable LED unit with a 10-year life incur overall costs of about $65.

When LED signs were introduced, high first costs limited them to a few niche applications. In 1994, an LED unit cost roughly five times as much as an incandescent model, but that gap has narrowed--and in some cases vanished altogether. A plastic incandescent exit sign without battery backup now sells for about $25 wholesale, compared to about $40 for a comparable LED unit. The price difference has disappeared for commodity-grade signs with battery backup.

Figure 1: Stencil-faced exit with diffuser



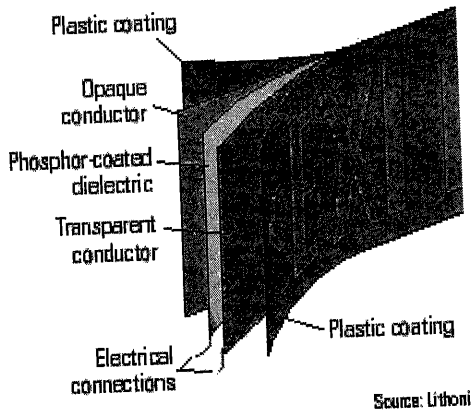
Compact fluorescent lamps (CFLs). Just a few years ago, CFL exit signs were the

leading alternative to standard incandescent
models, but they have virtually disappeared from the market. The CFLs simply could no
compete with LEDs in performance and lifecycle costs.

Electroluminescent panels. These panels (Figure 2) feature phosphors that light up w
voltage is applied. Although the panels produce a uniform light and consume very little p
the light source generally doesn't last as long as those in LED signs.

Photoluminescent materials. Some exit-sign manufacturers use photoluminescent materials that absorb and reradiate light. These signs do not require electrical power, but they need to be charged by light sources in their surrounding area. Improvements in the technology have led to recent acceptance by the National Fire Protection Code and recent UL approvals for some photoluminescent products.

Figure 2: Construction of an electroluminescent pa



How to Make the Best Choice

Select an Energy Star-labeled product. Through its Energy Star program, the U.S. Environmental Protection Agency has developed specifications for cost-effective, energy efficient exit signs. A sign may carry the Energy Star label if it:

- consumes less than 5 watts of power per face,
- exceeds the National Fire Protection Association Safety Code 101 guidelines, and
- carries at least a five-year manufacturer warranty for defective parts.

Manufacturers test their products against these guidelines, and the EPA maintains a We
that lists all qualifying products. You'll find that nearly all the qualifying signs are made v
LEDs.

If you just pick something off that list, you'll be making a good choice. To hone in on the
cost-effective option for your application, you can make use of the spreadsheet that's al
available at the EPA Web site. First, select the products that meet your non-energy-rela
requirements, such as number of faces, battery backup, and so on. Next, contact the
manufacturers to get the latest prices. Enter that price information in the spreadsheet to
which product will deliver the best overall savings at the lowest cost.

Pick products that use the newest LED technology. Not all LED products offer equa
performance. Exit signs using the newest LED technology start out brighter and maintai
brightness longer than those using older technologies. For red exit signs, look for produ
use aluminum, indium, gallium, and phosphorus LEDs, referred to in the trade as AlInG

Don't be fooled by long warranties. LEDs rarely burn out, but their brightness does fa
time, depending on the materials that they are made of and the temperatures and humi
are subjected to. In some applications, the brightness of a sign may diminish in just a fe
to the point that it no longer meets code. Even so, in the past many manufacturers offer
warranties on their products--in some cases for 25 years or more. Buyers often purchas
products with the expectation that they would last the life of the building without mainter

Although the newest LED products are expected to last longer than the early signs, repu
manufacturers are now offering shorter warranties. Lithonia, for example, which uses th
longest-lived LEDs available, backs up its products with a 5-year warranty. Lithonia beli
LEDs will last longer than that, but given that no 25-year tests have been conducted, the
company did not want to mislead buyers.

Are green LED signs a viable choice? Green signs are preferred (or required) in som
Early green LED products provided lower light output than red LED signs, but new techı
has created a green LED that is both bright and efficient. This technology is now availat
products made by such companies as Gilbert Industries and Lithonia.

Pick products with series/parallel wiring. When LEDs are wired in series, energy
consumption is slightly reduced, but the consequence of a failure is increased: If an indi
LED lamp fails, all the LEDs in series with it will also fail, leaving that portion of the sign
When signs are created with parallel sets of series strings, should one series fail, the otl
keep that portion of the sign illuminated, albeit at a lower level. We recommend that you
products with series/parallel wiring that will maintain the functionality of the sign in the e
single series failure.

What's on the Horizon?

LED exit signs will likely continue to be the most cost-effective energy-efficient option sc
prices keep falling and performance is improved. LEDs with efficacies greater than thos
CFLs have already been tested in the laboratory. The growing use of LED technology ir
applications (such as traffic lights) should accelerate the introduction of new products in
sign arena as well.

Who Are the Manufacturers?

Lithonia Lighting offers a full line of lighting products, and is the leading supplier of exit s
both incandescent and LED-based, in North America. The company uses the latest tech
in its signs. (Neither this list, nor any mention of a specific vendor or product in this guid
constitutes an endorsement or recommendation of any vendor or product by E Source,
does this guide constitute an endorsement or recommendation, explicit or otherwise, of
service providers' various technology-related programs.)

Cooper Lighting is also a general lighting company that offers an array of products, inclu
full line of LED and incandescent exit signs.

Gilbert Industries introduced the first LED-based exit sign back in 1987. The company n
offers a broad array of LED exit sign products.

Mule Emergency Lighting is another leading supplier of LED exit signs. In fact, the comp
supplied and installed more than 30,000 LED exit signs in Post Offices throughout the U

For a complete list of Energy Star partners that provide approved exit signs, visit the EP
site.

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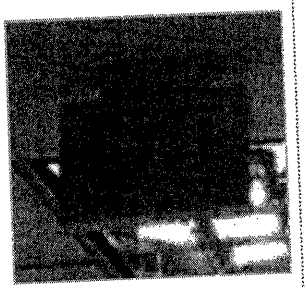
Exit Signs



If all U.S. companies switched to ENERGY STAR qualified exit signs, they would save $75 million in electricity costs.

Earning the ENERGY STAR

+ Exit signs that have earned the ENERGY STAR operate on five watts or less per face, compared to standard signs, which use as much as 40 watts per face.

+ When installed throughout a building, qualified exit signs can save hundreds or even thousands of dollars in energy and maintenance costs. One sign alone can save about $15-20 annually on electricity costs and can last up to 10 years without a lamp replacement, compared to less than one year for an incandescent.

+ Signs that have earned the ENERGY STAR are tested for visibility factors, and come with a five-year manufacturer warranty.

Remember, saving energy prevents pollution.
There are more than 100 million exit signs in use throughout the U.S. Typically lit by incandescent bulbs, these signs consume 30-35 billion kilowatt hours (kWh) hours of energy each year.

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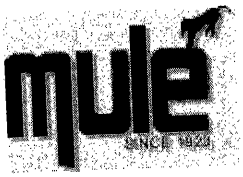

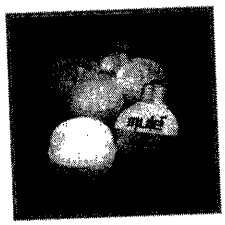

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CATEGORY: LED Exit Signs

Mulennium Series - View EZ-SPEC

Product Overview

The Mulennium Series combines an ultra-slim polycarbonate housing and dependable Mule LED performance to give you a versatile all-in-one, 21st century design. This truly universal exit sign includes the canopy and extra faces for any application. Installation is accomplished in minutes with our tool-less, Snap-InTM design. Available with red or green energy efficient LED light sources to provide years of maintenance-free illumination at a minimal cost.

BENEFITS & FEATURES All Models

- Durable scratch resistant polycarbonate housing
- Diffused SuperBright LEDs – Red or Green
- Even illumination – no hot spots
- Dual voltage 120/277 standard
- Eliminates maintenance – no more lamp changes
- Ultra-slim profile, contoured design
- Snap-In canopy, universal mounting
- Snap-In directional chevrons
- Installs in seconds with the simple Snap-In design
- Universal – All signs
- Damp location rated
- ETL listed
- Meets NFPA 101, NEC, OSHA
- 5 Year Limited Warranty

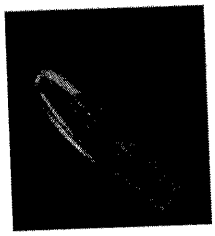
AC Only (MXA Model)

- Total power consumption under 2 watts

Self-Powered (MXB Model)

- Total power consumption under 5 watts
- Sealed maintenance-free nickel cadium battery
- Solid state charger
- Low voltage disconnect & brownout protection
- Flush mounted push-to-test switch & LED indicator
- Available with exclusive Infrared Remote Control battery tester. Makes battery inspections quick and easy without the need for a ladder.
- Available with Selfdiagnostics function.

Mule Lighting



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